

Short-term Methods of Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms (EPA-821-R-02-013), Fourth Edition, October 2002, or most recent update.

b. Types of Bioassay Tests

The permittee shall conduct 7-day Fathead Minnow (Pimephales promelas) Larval Survival and Growth Test on samples of final effluent. All tests will be conducted on 24-hour composite samples of final effluent. All test solutions shall be renewed daily. On days three and five fresh 24-hour composite samples of the effluent collected on alternate days shall be used to renew the test solutions.

If, in any control, more than 20% of the test organisms die in 7 days, that test shall be repeated. Such testing will determine whether the effluent affects the survival, reproduction, and/or growth of the test organisms. Results of all tests regardless of completion must be reported to IDEM.

c. Effluent Sample Collection and Chemical Analysis

- (1) Samples taken for the purposes of Whole Effluent Toxicity Testing will be taken at a point that is representative of the discharge, but prior to discharge. The maximum holding time for whole effluent is 36 hours for a 24 hour composite sample. Bioassay tests must be started within 36 hours after termination of the 24 hour composite sample collection. Bioassay of effluent sampling may be coordinated with other permit sampling requirements as appropriate to avoid duplication.
- (2) Chemical analysis must accompany each effluent sample taken for bioassay test. The analysis detailed under Part I.A. should be conducted for the effluent sample. Chemical analysis must comply with approved EPA test methods.

d. Testing Frequency and Duration

The chronic toxicity test specified in paragraph b. above shall be conducted at least once every six months for the duration of the permit.

If toxicity is demonstrated as defined under paragraph f., the permittee is required to conduct a toxicity reduction evaluation (TRE) as specified in Part 2 of this section.

e. Reporting

- (1) Results shall be reported according to EPA 821-R-02-013, Section 10 (Report Preparation). Two copies of the completed report for each test shall be submitted to the Data Management Section of IDEM no later than sixty days after completion of the test.
- (2) For quality control, the report shall include the results of appropriate standard reference toxic pollutant tests for chronic endpoints and historical reference toxic pollutant data with mean values and appropriate ranges for the respective test species Pimephales promelas. Biomonitoring reports must also include copies of Chain-of-Custody Records and Laboratory raw data sheets.
- (3) Statistical procedures used to analyze and interpret toxicity data including critical values of significance used to evaluate each point of toxicity should be described and included as part of the biomonitoring report.

f. Demonstration of Toxicity

- (1) During the period beginning on the effective date of this permit and lasting until the Alternate Mixing Zone is operational or three years after the effective date of this permit, whichever occurs first, the permittee shall monitor the effluent for chronic toxicity without the requirement to conduct a toxicity reduction evaluation described in Part 2 of this Section. If the alternate mixing zone is not approved, the permittee shall monitor the effluent for chronic toxicity with the requirement to conduct a toxicity reduction evaluation described in part 3 of this section.
- (2) During the period beginning on the date that the Alternate Mixing Zone is operational and lasting until the expiration date, Chronic toxicity will be demonstrated if the Chronic Toxic Units are more than 38 TU_c for Pimephales promelas. If the chronic toxicity is found in any of the tests specified above, a confirmation toxicity test using the specified methodology and same test species shall be

conducted within two weeks of the completion of the failed test to confirm results. If any two (2) consecutive tests, including any and all confirmation tests, indicate the presence of toxicity, the permittee must begin the implementation of a Toxicity Reduction Evaluation (TRE) as described below. The whole effluent toxicity tests required above may be suspended (upon approval from IDEM) while the TRE is being conducted.

- (3) If, three years after the effective date of this permit, the Alternate Mixing Zone has not become operational, then from that date until the expiration date, Chronic toxicity will be demonstrated if the Chronic Toxic Units are more than 1 TU_c for Pimephales promelas. If the chronic toxicity is found in any of the tests specified above, a confirmation toxicity test using the specified methodology and same test species shall be conducted within two weeks of the completion of the failed test to confirm results. If any two (2) consecutive tests, including any and all confirmation tests, indicate the presence of toxicity, the permittee must begin the implementation of a Toxicity Reduction Evaluation (TRE) as described below. The whole effluent toxicity tests required above may be suspended (upon approval from IDEM) while the TRE is being conducted.

2. Toxicity Reduction Evaluation (TRE) Schedule of Compliance

The development and implementation of a TRE (including any post-TRE biomonitoring requirements) is only required if toxicity is demonstrated as defined by paragraph 1.f(2) or 1.f(3) as applicable.

a. Development of TRE Plan

Within 90 days of determination of toxicity, the permittee shall submit plans for an effluent toxicity reduction evaluation (TRE) to the Data Management Section of IDEM. The TRE plan shall include appropriate measures to characterize the causative toxicants and the variability associated with these compounds. Guidance on conducting effluent toxicity reduction evaluations is available from EPA and from the EPA publications list below:

- (1) Methods for Aquatic Toxicity Identification Evaluations:

Phase I Toxicity Characteristics Procedures, Second Edition (EPA/600/6-91/003, February 1991).

Phase II Toxicity Identification Procedures (EPA 600/3-88/035), February 1989.

Phase III Toxicity Confirmation Procedures (EPA 600/3-88/036), February 1989.

- (2) Methods for Chronic Toxicity Identification
Phase I Characterization of Chronically Toxic Effluents
EPA/600/6-91/005, June 1991.
- (3) Generalized Methodology for Conducting Industrial
Toxicity Reduction Evaluations (EPA/600/2-88/070),
March 1989.
- (4) Toxicity Reduction Evaluation Protocol for Municipal
Wastewater Treatments Plants (EPA/600/2-88/062) April
1989.

b. Conduct the Plan

Within 30 days after the submission of the TRE plan to IDEM, the permittee must initiate an effluent TRE consistent with the TRE plan. Progress reports shall be submitted every 90 days to the Data Management and Compliance Evaluation Sections of the Office of Water Quality (OWQ) beginning 90 days after initiation of the TRE study.

c. Reporting

Within 90 days of the TRE study completion, the permittee shall submit to the Data Management and Compliance Evaluation Section of the Office of Water Quality (OWQ) the final study results and a schedule for reducing the toxicity to acceptable levels through control of the toxicant source or treatment of whole effluent.

d. Compliance Date

The permittee shall complete items a, b, and c from Part 2 of this section above and reduce the toxicity to acceptable levels as soon as possible, but no later than three years after the date of determination of toxicity.